

**THE NORTRONICS COMPANY, INC.** MINNEAPOLIS, MINNESOTA 55427

8101 TENTH AVENUE NORTH TELEPHONE 545 - 0401



┌ MR T NELSON SYS CONS  
BOX 1546  
POUGHKEEPSIE NEW YORK 12603

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Thank you for your recent inquiry and for your interest in NORTRONICS products.

We are enclosing descriptive literature on our general product line for your examination and use. Our factory representative in your area is listed below. He will be glad to supply you with any additional information that you may need.

If we can be of further assistance, please let us know. We are looking forward to being of service to you.

Sincerely,

THE NORTRONICS COMPANY, INC.

┌ JOHN STAWICKI  
Nortronics Representative  
P.O. Box 126  
Westbrook Road  
Essex, Conn.  
(203+767-8566)

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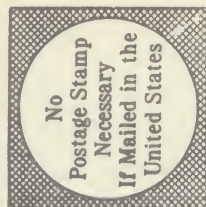
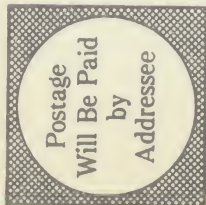
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*J. F. Dundovic*  
Joseph F. Dundovic  
Industrial Sales Manager

*Nortronics*

MAGNETIC TAPE HEADS



**BUSINESS REPLY CARD**

FIRST CLASS PERMIT NO. 8137, MINNEAPOLIS, MINN.

**THE NORTRONICS COMPANY, INC.**

**8101 TENTH AVENUE NORTH**

**MINNEAPOLIS, MINNESOTA 55427**

# NORTRONICS BUSINESS REPLY CARD FOR MAILING LIST

PLEASE CHECK THE BOXES WHICH APPLY TO YOU.

☐ YES! Keep (or place) me on the Nortronics mailing list for the Headliner, engineering bulletins, catalogs, etc. on Magnetic Recording, heads, and accessories.

☐ SEND me \_\_\_\_\_ of these cards for associates who wish to be also placed on your mailing list.

## I AM IN:

☐ Manufacturing ☐ R & D ☐ for Magnetic Recording Equipment  
☐ Other equipment

## AREA:

☐ Engineering ☐ Purchasing ☐ Production  
☐ Quality Control ☐ Management ☐ Sales

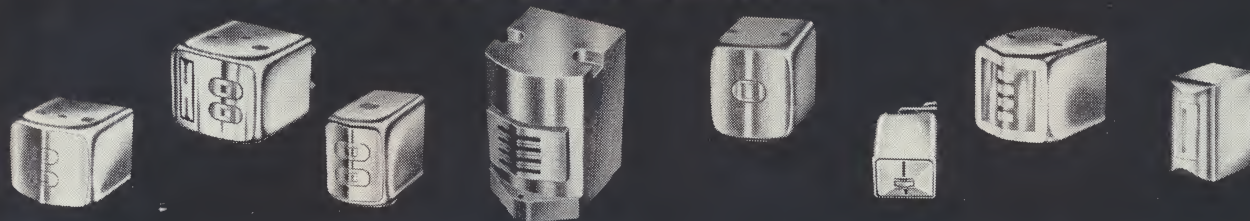
My title is: \_\_\_\_\_

☐ Audiophile or Home Experimeter  
☐ Radio or TV Broadcasting Station \_\_\_\_\_  
☐ Servicing Magnetic Recorders  
☐ Dealer or Distributor Sales,  
Recording Equipment and Accessories  
☐ Other Interests: \_\_\_\_\_

Please place your name and mailing address in the space above. Or else indicate any changes or corrections on the name and address as shown from our present listing.

COMMENTS:

# Nortronics®



• ERASE-RECORD/PLAYBACK • RECORD • RECORD/PLAYBACK • ERASE

## YOUR BEST AND MOST COMPLETE SOURCE FOR MAGNETIC TAPE HEADS

NORTRONICS magnetic tape heads are designed to offer highest quality performance and long dependable service. As the foremost manufacturer and proponent of laminated-core magnetic heads, NORTRONICS now offers a complete line of heads, available in a wide selection of track styles, functions, and sizes in PROFESSIONAL, PREMIUM or STANDARD laminated versions.

### CHOOSE FROM: PROFESSIONAL, PREMIUM OR STANDARD VERSIONS

**Track Size:** 8-Track, 4-Track, 2-Track or Full Track

**Channels:** 4-Channel, 3-Channel, Stereo or Monophonic

**Face Contour:** Hyperbolic, Cylindrical, Relieved or Extended Tip

**Case Size:** 9 Different R/P, 5 Different Erase

**Impedances:** 8 Standard R/P, 3 Standard Erase

**Gap Spacers:** 50 to 500 Micro-inch Deposited Quartz

**Mounting:** Base, Side, Rear or No Mount, plus ADJUSTABLE Mounting Assemblies

(For complete electrical and mechanical data, see the following 5 pages.)

### PREMIUM

The PREMIUM series of heads gives outstanding performance for broadcast, industrial, recording studio, and other exacting applications. Long life and extended high frequency response, particularly at the slower tape speeds, are major benefits in addition to the features listed below:

- Fine laminated, precision-lapped, low loss core structures.
- Deposited quartz gaps result in exceptionally clean, sharp gap edges for optimum high frequency resolution. Gaps are from 50 to 500 micro-inches in length; shorter gaps down to 20 micro-inches available on special order.
- Hyperbolic face contour gives intimate tape-to-gap contact without need for pressure pads, but is designed to allow use with pressure pads as well.
- Highly polished all-metal faces, greatly reduce oxide buildup and need for frequent head cleaning.
- Compatible mechanically and electrically with older model Nortronics heads.
- Superbly shielded against external magnetic fields.

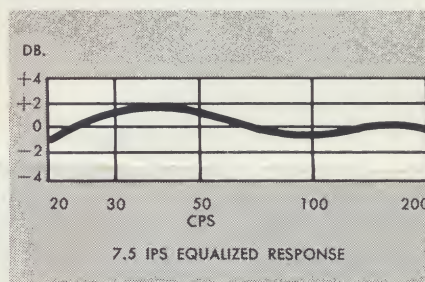
### STANDARD

The STANDARD laminated versions are superior to conventional solid-core heads. They offer improved high frequency response, long life, hyperbolic all-metal faces and precision deposited quartz gaps. This standard line is recommended for non-critical applications where cost is of primary importance.

### PROFESSIONAL

#### Offers extended low frequency response for critical applications!

This new "WP" Series has pickup poles designed to deliver an additional octave of low frequency response for 7.5 and 15 ips professional playback applications, with only a slight reduction in hum shielding. High frequency response is equivalent to that of the proven Premium models. Available in 2-Track Stereo and Mono, and 4-Track Stereo versions in B-case style.



## NEW! EXTENDED TIP RECORD/PLAY HEADS

### Available with Alfenol or Mu Metal Cores

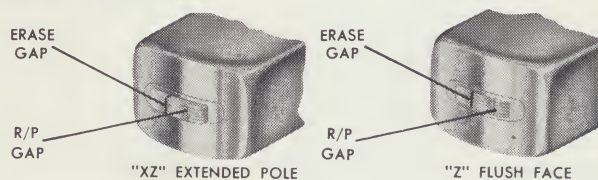
For Magnetic Film Strip, Drum and Disc Applications, Nortronics offers a new "XP" series of Mono Record/Playback heads. The pickup poles extend 10 to 15 mils beyond the face of the head to give point contact on hard surfaces.

Various Track Widths from .006" to .080" can be supplied in "XA" type long-wearing Alfenol laminations, or in highly sensitive "XP" Hi-Mu alloy. A representative head is the model XA-C1LC6K-NO, with 20-mil extended Alfenol track, no-mount C-case, 200 mhy. inductance and 100-U gap. B-case models also available.

## NEW! "Z-COMBO" ERASE-RECORD/PLAY MODELS

Available for the first time, the new "Z" series combo head features CLOSE-COUPLED gaps. Ideal for dictation and film-stripe recorders, the close spacing between Erase and R/P gaps permits razor-sharp editing of recorded material. Features are:

- Close spacing (.060") between Erase and R/P gaps.
- Extended pole-tips ("XZ") for hard surface point contact or flush face ("Z") for tape operation.
- Recording gap is self-biased by magnetic coupling from erase section. No external bias circuit needed.
- Alfenol poles for long wear or Hi-Mu for maximum sensitivity.
- Track widths from .006 to .043-inches.



A representative head is the model XP-ZB1LC44K-NO, with extended premium Hi-Mu poles, B-case, mono .020 centered track, 100 mhy. R/P inductance, 100-U gap, no mount. Available only in B-case style. To order flush-face version, delete "X" from descriptive part number.

# Nortronics®

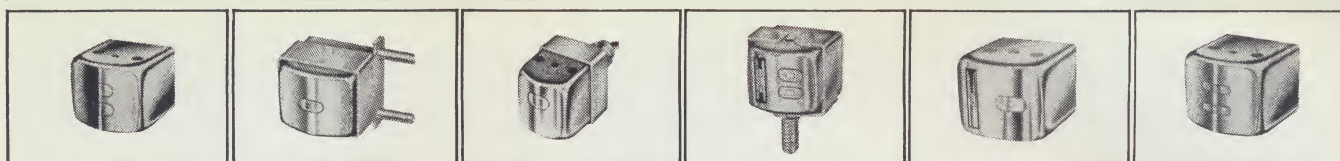


THE NORTRONICS COMPANY, INC.

8107 Tenth Ave. No. • Minneapolis, Minnesota 55427  
Phone: 612-545-0401



## 4-TRACK AND 8-TRACK HEADS



4-Tr. Stereo  
**B2Q-N**  
(No Mount)

4-Tr. Mono  
**B1QC-S**  
(Side Mount)

4-Tr. Mono  
**G1Q-R**  
(Rear Mount)

4-Tr. Stereo Combo  
**A2Q-BL**  
(Base Mount)

4-Tr. Mono Combo  
**A1QC-N**  
(No Mount)

8-Tr. Stereo  
**B2L-N**  
(No Mount)

The heads are shown with various mounting hardware attached to indicate the variety of mountings available, but all are available in your choice of standard mounts: base, side, rear or no mount.

### TYPICAL SPECIFICATIONS FOR RECORD/PLAY AND RECORD HEADS

TRACK SYSTEM		4-TRACK (.043 IN. TRACK WIDTH)								8-TR. (.020 IN. TRACK WIDTH)		
NORTRONICS BASIC MODEL NO.		MONO-B1QC, G1Q, A1QC, E1QC (Hyperbolic of A1QC) STEREO-B2Q, G2Q, C2Q, A2Q, E2Q (Hyperbolic of A2Q)								STEREO B2L		
Electrical Code	8R	4R	8K	4K	6K	7K	7F2	2K	8R	4R	7K	
Head Function	Duplicating Record	Record Only	Record/Playback	Record/Playback	Record/Playback	Record/Playback	Playback Only	Record/Playback	Duplicating Record	Record Only	Record/Playback	
Type of Circuit	Tubes/Transistors	Tubes/Transistors	Transistors	Transistors	Transistors	Transistors	Tubes/Transistors	Tubes/Transistors	Tubes/Transistors	Tubes/Transistors	Transistors	
Inductance, 1 KC	10 MHY	50 MHY	20 MHY	100 MHY	200 MHY	400 MHY	500 MHY	800 MHY	10 MHY	50 MHY	400 MHY	
Impedance, 1 KC	70 Ω	400 Ω	150 Ω	650 Ω	1.3 K	2.5 K	3.3 K	5 K	75 Ω	400 Ω	2.5 K	
Maximum Bias Frequency	500 KC	250 KC	250 KC	140 KC	120 KC	100 KC	100 KC	80 KC	750 KC	250 KC	100 KC	
*Resistance, D.C.	22 Ω	90 Ω	22 Ω	90 Ω	110 Ω	210 Ω	210 Ω	520 Ω	29 Ω	100 Ω	520 Ω	
**Resistance, D.C.	32 Ω	90 Ω	32 Ω	90 Ω	200 Ω	390 Ω	390 Ω	700 Ω	42 Ω	220 Ω	700 Ω	
Gap Spacer	0.5-MIL	0.5-MIL	0.1-MIL	0.1-MIL	0.1-MIL	0.1-MIL	0.05-MIL	0.1-MIL	0.5 MIL	0.5 MIL	0.1 MIL	
**Track Spacing	.136-IN.	.136-IN.	.136-IN.	.136-IN.	.136-IN.	.136-IN.	.136-IN.	.136-IN.	.127-IN.	.127-IN.	.127-IN.	
1 KC Crosstalk Rej.	55 DB	55 DB	55 DB	55 DB	55 DB	55 DB	55 DB	55 DB	55 DB	55 DB	55 DB	

FOR PREMIUM HEADS—AVERAGE 7.5 IPS CONSTANT CURRENT RECORD/PLAYBACK CHARACTERISTICS USING 3M190 TAPE (3M111 WITHIN 5%) PEAK BIASED AT 1 KC AND RECORDED 12 DB BELOW TAPE SATURATION.

Peak Bias Current, 60 KC	1.3 MA	0.65 MA	1.6 MA	0.70 MA	0.40 MA	0.25 MA	0.25 MA	0.16 MA	1.1 MA	0.5 MA	0.15 MA
Bias Voltage RMS, 60 KC	3 V.	7.5 V.	6 V.	18 V.	25 V.	35 V.	50 V.	45 V.	2.6 V.	8 V.	21 V.
Record Current	140 UA	60 UA	150 UA	70 UA	50 UA	35 UA	30 UA	25 UA	88 UA	40 UA	19 UA
1 KC Output	—	—	0.5 MV	0.9 MV	1.3 MV	1.8 MV	1.8 MV	2.6 MV	—	—	1.0 MV
10 KC/1 KC Ratio	—	—	0 DB	0 DB	+1 DB	+1 DB	+2 DB	+1 DB	—	—	0 DB

FOR PREMIUM HEADS—AVERAGE 3.75 IPS CONSTANT CURRENT RECORD/PLAYBACK CHARACTERISTICS USING 3M190 TAPE (3M111 WITHIN 5%) PEAK BIASED AT 1 KC AND RECORDED 12 DB BELOW TAPE SATURATION.

Peak Bias Current, 60 KC	1.2 MA	0.50 MA	1.25 MA	0.50 MA	0.32 MA	0.20 MA	0.20 MA	0.12 MA	1.0 MA	0.4 MA	0.12 MA
Bias Voltage RMS, 60 KC	2.5 V.	7.0 V.	5 V.	13 V.	20 V.	25 V.	35 V.	35 V.	2.3 V.	7 V.	18 V.
Record Current	130 UA	50 UA	130 UA	50 UA	44 UA	30 UA	25 UA	22 UA	86 UA	35 UA	18 UA
1 KC Output	—	—	0.4 MV	0.7 MV	1.0 MV	1.4 MV	1.4 MV	2.1 MV	—	—	0.8 MV
10 KC/1 KC Ratio	—	—	—10 DB	—10 DB	—9 DB	—9 DB	—7 DB	—9 DB	—	—	—9 DB

FOR STANDARD HEADS—AVERAGE 7.5 IPS CONSTANT CURRENT RECORD/PLAYBACK CHARACTERISTICS USING 3M190 TAPE (3M111 WITHIN 5%) PEAK BIASED AT 1 KC AND RECORDED 12 DB BELOW TAPE SATURATION.

Peak Bias Current, 60 KC	—	—	—	1.1 MA	0.70 MA	0.42 MA	—	0.30 MA	—	—	.55 MA
Bias Voltage RMS, 60 KC	—	—	—	20 V.	25 V.	35 V.	—	45 V.	—	—	32 V.
Record Current	—	—	—	70 UA	50 UA	35 UA	—	25 UA	—	—	30 UA
1 KC Output	—	—	—	0.8 MV	1.2 MV	1.6 MV	—	2.4 MV	—	—	0.9 MV
10 KC/1 KC Ratio	—	—	—	—4 DB	—3 DB	—3 DB	—	—3 DB	—	—	—4 DB

\*Mono \*\*Stereo

Specifications subject to change without notice

#### PREFERRED MODELS; MOST POPULAR MODELS—Immediate Availability from Stock.

##### 4-TR. STEREO COMBO

P-A2Q44R  
P-A2Q47K  
A2Q47K

##### 4-TR. MONO COMBO

P-A1QC44R  
P-A1QC47K  
A1QC47K

##### 4-TR. STEREO R/P

P-B2Q4R  
P-B2Q7K  
P-B2Q7F2  
B2Q7K

##### 8-TR. STEREO R/P

P-B2L7K  
B2L7K

### HOW TO DETERMINE YOUR MODEL NUMBER

Because of the great variety of Nortronics heads and the large number of combinations of electrical and mechanical characteristics which are available, it is recommended that this Head Nomenclature Guide be used in selecting the proper model number for your Record/Play, Record, or Combo head.

As a typical example of utilization of this system, the model number to the right describes a "Premium, 4-track (quarter track) mono combination (combo) erase-R/P head with centered track. No. 4 erase electrical code (See erase electrical codes in the section of this publication describing erase heads), No. 6K R/P electrical code, 'A' style case, side mount with erase section to the left."

Another typical example would be a B2H4R-R-12S, "Standard, 2-track (half track) stereo record-only head, No. 4R record electrical code, 'B' style case, rear mount, 12 inch shielded leads."

P—Denotes Premium Head (Standard has no prefix)  
WP—Denotes Professional Head  
XP—Denotes Extended Tip Premium Head

BASIC MODEL NUMBER

Erase Electrical Code—Combo Heads Only (See Section on Erase Heads for this Code).

R/P Electrical Code

Mounting Designator (See Standard Mounts)

**P-A1QC46K-SL**

BASIC MODEL NUMBER describes Mechanical Characteristics of the head as follows:

A—Letter denotes case outline style (see Case Outline Styles)

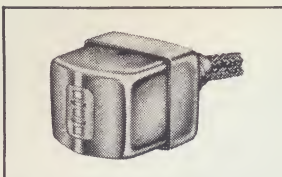
1—Denotes number of channels  
1—Mono  
2—Stereo  
3—3-channel  
Q—4-channel

Q—Denotes track system  
H—2-track (Half Track)  
Q—4-track (Quarter Track)  
L—8-track

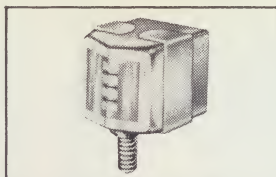
C—Track Location Designator (Mono Heads Only)  
NONE—Standard Stereo Offset  
C—Centered track  
Y—.020 off center (G1HY)  
.040 off center (B1HY)



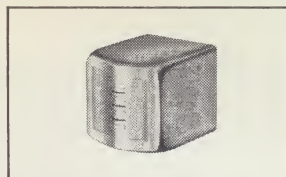
**3-TRACK  
3-CHANNEL  
B3Q-R  
(Rear Mount)**



**4-TRACK  
4-CHANNEL  
BQQ-B  
(Base Mount)**



**8-TRACK  
4-CHANNEL  
BQL-N  
(No Mount)**



The heads are shown with various mounting hardware attached to indicate the variety of mountings available, but all are available in your choice of standard mounts: base, side, rear or no mount.

## TYPICAL SPECIFICATIONS FOR RECORD/PLAY AND RECORD HEADS

TRACK SYSTEM	3-TRACK (.043 IN. WIDTH)				4-TRACK (.037 IN. WIDTH)				8-TRACK (.021 IN. WIDTH)		
NORTRONICS BASIC MODEL NUMBER	P-B3Q 3 CHANNELS FOR 1/4" TAPE				BQQ 4 CHANNELS FOR 1/4" TAPE				BQL 4 CHANNELS FOR 1/4" TAPE		
Electrical Code	4 R	4 K	6 K	7 K	23 R	4 R	4 K	3 K	8 R	4 R	3 K
Head Function	Record Only	Record/Playback	Record/Playback	Record/Playback	Duplicating Record	Record Only	Record/Playback	Record/Playback	Duplicating Record	Record Only	Record/Playback
Type of Circuit	Tubes/Transistors	Transistors	Transistors	Tubes/Transistors	Tubes/Transistors	Tubes/Transistors	Transistors	Tubes/Transistors	Tubes/Transistors	Tubes/Transistors	Tubes/Transistors
Inductance, 1 KC	50 MHY	100 MHY	200 MHY	340 MHY	12 MHY	50 MHY	90 MHY	370 MHY	10 MHY	45 MHY	240 MHY
Impedance, 1 KC	400 Ω	650 Ω	1.3 K	2.0 K	75 Ω	320 Ω	600 Ω	2.2 K	65 Ω	300 Ω	1.5 K
Maximum Bias Frequency	250 KC	140 KC	120 KC	100 KC	500 KC	150 KC	100 KC	80 KC	500 KC	300 KC	150 KC
Resistance, D.C.	260 Ω	260 Ω	450 Ω	800 Ω	55 Ω	220 Ω	220 Ω	690 Ω	50 Ω	220 Ω	765 Ω
Gap Spacer	0.5-MIL	0.1-MIL	0.1-MIL	0.1-MIL	0.5-MIL	0.5-MIL	0.1-MIL	0.1-MIL	0.5-MIL	0.5-MIL	0.1-MIL
Track Spacing	.100-IN.	.100-IN.	.100-IN.	.100-IN.	.071-IN.	.071-IN.	.071-IN.	.071-IN.	.0635-IN.	.0635-IN.	.0635-IN.
1 KC Crosstalk Rej.	55 DB	55 DB	55 DB	55 DB	50 DB	50 DB	50 DB	50 DB	52 DB	52 DB	52 DB
FOR PREMIUM HEADS—AVERAGE 7.5 IPS CONSTANT CURRENT RECORD/PLAYBACK CHARACTERISTICS USING 3M190 TAPE (3M111 WITHIN 5%) PEAK BIASED AT 1 KC AND RECORDED 12 DB BELOW TAPE SATURATION											
Peak Bias Current, 60 KC	0.65 MA	0.70 MA	0.40 MA	0.25 MA	2.0 MA	0.60 MA	0.70 MA	0.30 MA	3.0 MA	0.8 MA	0.3 MA
Bias Voltage RMS, 60 KC	7.5 V.	18 V.	20 V.	35 V.	4 V.	7 V.	15 V.	30 V.	10 V.	10 V.	25 V.
Record Current	60 UA.	60 UA.	50 UA.	35 UA.	110 UA.	60 UA.	60 UA.	34 UA.	120 UA.	80 UA.	35 UA.
1 KC Output	—	0.9 MV	1.3 MV	1.8 MV	—	—	0.7 MV	1.4 MV	—	—	1.2 MV
10 KC/1 KC Ratio	—	0 DB	+1 DB	+1 DB	—	—	0 DB	0 DB	—	—	+1 DB
FOR PREMIUM HEADS—AVERAGE 3.75 IPS CONSTANT CURRENT RECORD/PLAYBACK CHARACTERISTICS USING 3M190 TAPE (3M111 WITHIN 5%) PEAK BIASED AT 1 KC AND RECORDED 12 DB BELOW TAPE SATURATION											
Peak Bias Current, 60 KC	0.50 MA	0.50 MA	0.32 MA	0.20 MA	1.6 MA	0.50 MA	0.50 MA	0.22 MA	2.5 MA	0.65 MA	0.24 MA
Bias Voltage RMS, 60 KC	7.0 V.	13 V.	15 V.	25 V.	3 V.	6 V.	10 V.	25 V.	8 V.	9 V.	20 V.
Record Current	50 UA.	50 UA.	44 UA.	30 UA.	90 UA.	50 UA.	50 UA.	30 UA.	100 UA.	60 UA.	30 UA.
1 KC Output	—	0.7 MV	1.0 MV	1.4 MV	—	—	0.5 MV	1.1 MV	—	—	0.8 MV
10 KC/1 KC Ratio	—	-10 DB	-9 DB	-9 DB	—	—	-10 DB	-9 DB	—	—	-12 DB

NOT AVAILABLE IN STANDARD VERSION

Specifications subject to change without notice

### PREFERRED MODELS; MOST POPULAR MODELS—Immediate Availability from Stock

3-TR, 3 CH. R/P	4-TR, 4 CH. R/P
P-B3Q4R	BQQ4R
P-B3Q7K	BQQ3K
8-TR, 4 CH. R/P	
BQL4R	
BQL3K	

### NEW! High Precision Instrumentation Heads

For Analog and FM instrumentation applications . . . Nortronics offers two new 3-channel and 4-channel magnetic record and reproduce tape heads. Format follows the standard IRIG 7-channel interface for 1/2-inch tape—Track width is 0.050 inches; tracks spaced 0.140 inches center-to-center across the head and .070 inches center-to-center across the tape when the two heads are interlaced. All channels within heads located within 0.002 inches of the nominal position required to match this track location. Heads feature deposited quartz gaps down to one micron, and without mounts, measure only 0.700 inches wide by 0.830 inches high by 0.665 inches deep. Mounts, terminal connections, impedances and resolution can be tailored to fit individual requirements.



## STANDARD MOUNTS

R/P AND COMBO MOUNTING DESIGNATORS follow model number in this fashion: "G1HY-N", no mount,

"-B3", standard *base mount*—"G" or "T" style R/P heads only.

"-B", standard *base mount*—"B" or "R" style R/P heads.

"-BL", standard *base mount*—Combo heads ("A" and "E") with R/P section to the right.

"-BR", standard *base mount*—Combo heads ("A" and "E") with R/P section to the left.

"-S", standard *side mount*—All R/P heads.

"-SL", standard *side mount*—Combo heads ("A" and "E") with R/P section to the right.

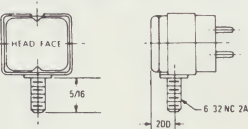
"-SR", standard *side mount*—Combo heads ("A" and "E") with R/P section to the left.

"-R-12S", standard *rear mount* with 12 inch shielded leads.

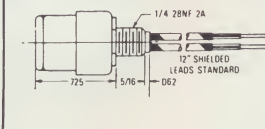
"-R-4U", standard *rear mount* with 4 inch unshielded leads.

Ask us if you have special mounting requirements.

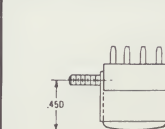
#### BASE MOUNT (—B)



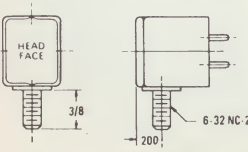
#### REAR MOUNT (—R—12S)



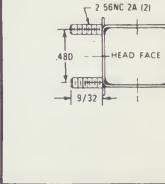
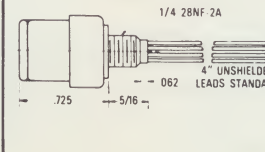
#### SIDE MOUNT (—S)

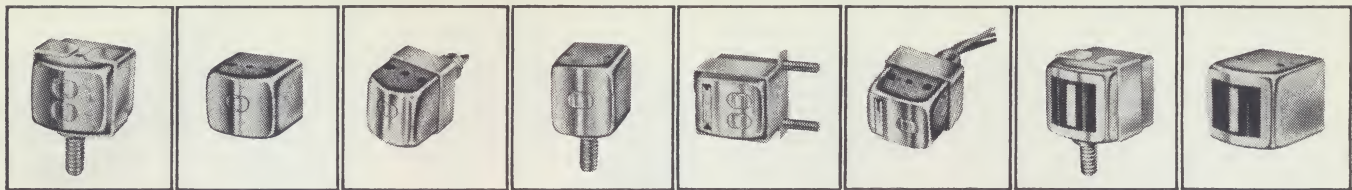


#### BASE MOUNT (—B3) "G" or "T" Style Heads Only



#### REAR MOUNT (—R—4U)





2-Tr. Stereo **B2H-B** (Base Mount)    2-Tr. Mono **B1HY-N** (No Mount)    2-Tr. Mono **G1H-R** (Rear Mount)    2-Tr. Mono **G1HY-B** (Base Mount)    2-Tr. Stereo Combo **A2H-SL** (Side Mount)    2-Tr. Mono Combo **A1HC-R** (Rear Mount)    Full Track **SLF-B** (Base Mount)    Full Track **SLFH-N** (No Mount)

The heads are shown with various mounting hardware attached to indicate the variety of mountings available, but all are available in your choice of standard mounts: base, side, rear or no mount.

### TYPICAL SPECIFICATIONS FOR RECORD/PLAY AND RECORD HEADS

TRACK SYSTEM	2-TRACK (.080 IN. TRACK WIDTH)								FULL TRACK (.260 IN. TRACK WIDTH)		
NORTRONICS BASIC MODEL NUMBER	MONO-B1HY, G1H, G1HY, A1HC, E1HC (Hyperbolic of A1HC) STEREO-B2H, A2H, E2H (Hyperbolic of A2H)								SLF (Cylindrical Face) SLFH (Hyperbolic Face)		
Electrical Code	8R	4R	8K	4K	6K	7K	7F2	2K	7R	4R	3L
Head Function	Duplicating Record	Record Only	Record/Playback	Record/Playback	Record/Playback	Record/Playback	Record/Playback	Record/Playback	Duplicating Record	Record Only	Record/Playback
Type of Circuit	Tubes/Transistors	Tubes/Transistors	Transistors	Transistors	Transistors	Tubes/Transistors	Tubes/Transistors	Tubes	Tubes/Transistors	Tubes/Transistors	Tubes/Transistors
Inductance, 1 KC	10 MHY	50 MHY	20 MHY	100 MHY	200 MHY	400 MHY	450 MHY	800 MHY	10 MHY	55 MHY	250 MHY
Impedance, 1 KC	72 Ω	320 Ω	150 Ω	650 Ω	1.3 KC	2.5 K	3.3 K	5 K	60 Ω	330 Ω	1.5 K
Maximum Bias Frequency	500 KC	200 KC	250 KC	150 KC	100 KC	100 KC	80 KC	60 KC	500 KC	250 KC	80 KC
*Resistance, D.C.	14 Ω	70 Ω	14 Ω	70 Ω	110 Ω	165 Ω	165 Ω	400 Ω	6 Ω	125 Ω	200 Ω
**Resistance, D.C.	27 Ω	130 Ω	27 Ω	130 Ω	245 Ω	410 Ω	410 Ω	720 Ω	—	—	—
Gap Spacer	0.5-MIL	0.5-MIL	0.1-MIL	0.1-MIL	0.1-MIL	0.1-MIL	0.05-MIL	0.1-MIL	0.5-MIL	0.5-MIL	0.16-MIL
**Track Spacing	.160-IN.	.160-IN.	.160-IN.	.160-IN.	.160-IN.	.160-IN.	.160-IN.	.160-IN.	—	—	—
1 KC Crosstalk Rej.	55 DB	55 DB	55 DB	55 DB	55 DB	55 DB	55 DB	55 DB	—	—	—

FOR PREMIUM HEADS—AVERAGE 7.5 IPS CONSTANT CURRENT RECORD/PLAYBACK CHARACTERISTICS USING 3M190 TAPE (3M111 WITHIN 5%) PEAK BIASED AT 1 KC AND RECORDED 12 DB BELOW TAPE SATURATION.											
Peak Bias Current, 60 KC	1.7 MA	0.70 MA	2.0 MA	0.80 MA	0.40 MA	0.33 MA	0.46 MA	0.25 MA	4.0 MA	0.8 MA	1.2 MA
Bias Voltage RMS, 60 KC	3.3 V.	9 V.	7.5 V.	20 V.	30 V.	40 V.	55 V.	55 V.	9 V.	24 V.	40 V.
Record Current	200 UA	75 UA	220 UA	80 UA	60 UA	40 UA	46 UA	30 UA	320 UA	100 UA	90 UA
1 KC Output	—	—	0.7 MV	1.2 MV	1.8 MV	2.4 MV	2.2 MV	3.6 MV	—	—	4.0 MV
10 KC/1 KC Ratio	—	—	0 DB	0 DB	+1 DB	+1 DB	+2 DB	+1 DB	—	—	0 DB

FOR PREMIUM HEADS—AVERAGE 3.75 IPS CONSTANT CURRENT RECORD/PLAYBACK CHARACTERISTICS USING 3M190 TAPE (3M111 WITHIN 5%) PEAK BIASED AT 1 KC AND RECORDED 12 DB BELOW TAPE SATURATION.											
Peak Bias Current, 60 KC	1.5 MA	0.60 MA	1.8 MA	0.70 MA	0.30 MA	0.22 MA	0.37 MA	0.20 MA	3.7 MA	0.7 MA	0.9 MA
Bias Voltage RMS, 60 KC	2.8 V.	8 V.	6.5 V.	15 V.	25 V.	30 V.	45 V.	40 V.	8.5 V.	20 V.	30 V.
Record Current	180 UA	65 UA	200 UA	66 UA	45 UA	30 UA	37 UA	22 UA	250 UA	90 UA	80 UA
1 KC Output	—	—	0.6 MV	0.9 MV	1.2 MV	1.8 MV	1.5 MV	2.4 MV	—	—	3.0 MV
10 KC/1 KC Ratio	—	—	-10 DB	-10 DB	-9 DB	-9 DB	-7 DB	-9 DB	—	—	-12 DB

FOR STANDARD HEADS—AVERAGE 7.5 IPS CONSTANT CURRENT RECORD/PLAYBACK CHARACTERISTICS USING 3M190 TAPE (3M111 WITHIN 5%) PEAK BIASED AT 1 KC AND RECORDED 12 DB BELOW TAPE SATURATION.											
Peak Bias Current, 60 KC	—	—	—	1.1 MA	0.80 MA	0.6 MA	—	0.4 MA	NOT AVAILABLE IN STANDARD VERSION		
Bias Voltage RMS, 60 KC	—	—	—	20 V.	30 V.	45 V.	—	65 V.			
Record Current	—	—	—	80 UA	60 UA	40 UA	—	30 UA			
1 KC Output	—	—	—	1.1 MV	1.7 MV	2.2 MV	—	3.4 MV			
10 KC/1 KC Ratio	—	—	—	-4 DB	-3 DB	-3 DB	—	-3 DB			

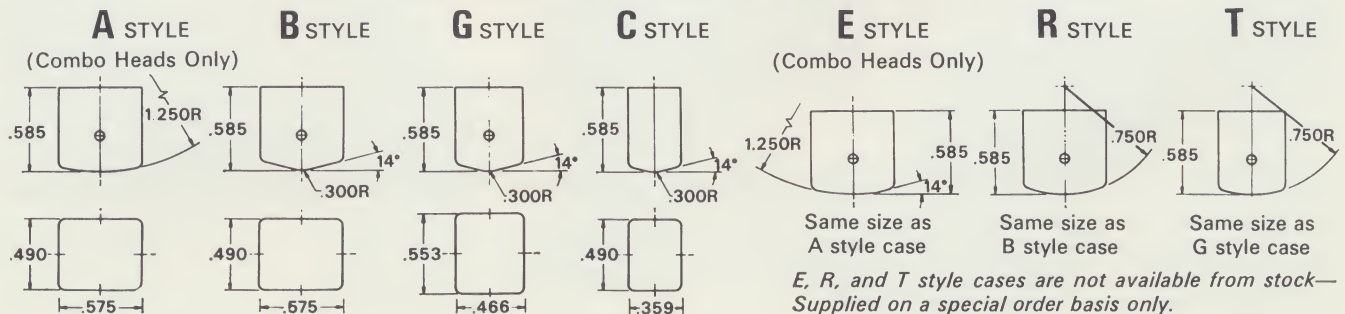
\*Mono    \*\*Stereo

Specifications subject to change without notice.

### PREFERRED MODELS; MOST POPULAR MODELS—Immediate Availability From Stock

2-TR. STEREO COMBO	2-TR. MONO COMBO	2-TR. STEREO R/P	2-TR. MONO R/P (B CASE)	2-TR. MONO R/P (G CASE)	FULL TR. R/P
P-A2H44R	P-A1HC44R	P-B2H4R	P-B1HY4R	P-G1H4R	SLF7R
P-A2H47K	P-A1HC47K	P-B2H7K	P-B1HY7K	P-G1H7K	SLF3L
A2H47K	A1HC47K	B2H7K	B1HY7K	G1H7K	

### CASE OUTLINE STYLES (Shown ¾ Size)





## ERASE AND MINIATURE HEADS

### ERASE HEADS

All Nortronics erase heads have efficient double-gap construction plus metal faces and cases for superior heat transfer. They will operate effectively at erase frequencies up thru 100 kc. and also on d.c. Two low-cost standard case sizes, "L" and "S", in the various mounting styles as illustrated to the right and indicated below. All erase models are also available in the B-case style to match the R/P heads; example, B2EQ4-N which is identical electrically to the SEQ4.

Erase heads are shown with various mounts, but all are available in your choice of *base, side, rear or no mount*.

**TO DETERMINE ERASE MODEL NUMBER**, select a basic model number, add the erase electrical code, add a dash (-) and add mounting designator (below). Following are typical examples:

**MEH1-S23U**, 2-track (half track) mono erase head, No. 1 erase electrical code, "L" case, *side mount, track up* (studs are to left).

**SEQ4-R-12S**, 4-track (quarter track) stereo erase head, No. 4 erase electrical code, "S" case, *rear mount, 12 inch shielded leads*.

Erase Mounting Designator follows model number in this fashion:

**"SEH2-N9"**, no mount (S Size)

**"-N"**, no mount (L-Size)

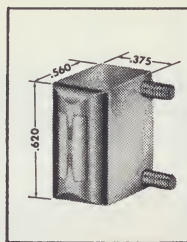
**"-B3"**, standard base mount (Supplied S Size only). For mono heads, add a U for up or D for down after the B3 to denote track up or track down.

**"-S23"**, standard side mount (Supplied L Size only). For mono heads, add a U for up or a D for down after S23 to denote track up or track down.

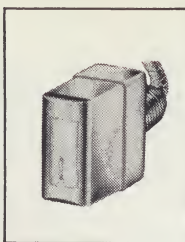
**"-R-12S"**, standard rear mount and 12 inch shielded leads (Supplied S Size only).

**"-R-4U"**, standard rear mount and 4 inch unshielded leads (Supplied S Size only)

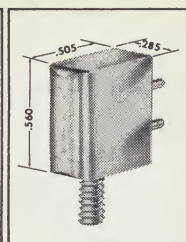
For 'B' style erase heads, mounts are the same as for R/P heads.



L Size  
**SEQ**  
(Side Mount—S23)



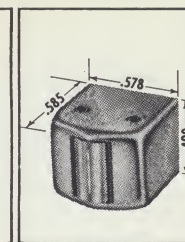
S Size  
**MEH**  
(Rear Mount—R-12S)



S Size  
**SEH**  
(Base Mount—B3)



L Size  
**MEF**  
(No Mount—N)



B Style  
**B1EF**  
(No Mount—N)

#### TYPICAL SPECIFICATIONS FOR ERASE HEADS

TRACK SYSTEM	4-TRACK			2-TRACK			FULL TRACK	
NORTONICS BASIC MODEL NUMBER	MONO: MEQ STEREO: SEQ; B2EQ			MONO: MEH STEREO: SEH; B2EH			MEF B1EF	
Electrical Code	1	2	4	1	2	4	1	4
Inductance, 1 KC	80 MHY	0.13 MHY	10 MHY	50 MHY	0.20 MHY	8 MHY	40 MHY	3.6 MHY
Resistance, D.C.	240 Ω	1.8 Ω	38 Ω	160 Ω	1.8 Ω	30 Ω	88 Ω	25 Ω
†Erase Current Oper.	5 MA	120 MA	13 MA	6 MA	120 MA	20 MA	13 MA	40 MA
Impedance, 60 KC	30 K	40 Ω	3 K	20 K	50 Ω	2 K	12 K	1 K
Voltage, 60 KC RMS	120 V.	5 V.	40 V.	120 V.	6 V.	40 V.	120 V.	40 V.

†For 56 DB erasure of Saturated Tape

Specifications subject to change without notice.

#### PREFERRED MODELS; MOST POPULAR MODELS—Immediate Availability From Stock.

**4-Tr. Stereo**  
**SEQ4**

**2-Tr. Mono**  
**MEH4**

**2-Tr. Stereo**  
**SEH4**

**Full Track**  
**MEF4**

Both S and L cases are Preferred Models

## MINIATURE SERIES TAPE HEADS FOR MAGNETIC DRUMS, DISCS, FILM STRIPES AND MINIATURE RECORDERS

The Nortronics "L" and "M" series of magnetic heads are miniature in size but high in performance.

THE "L" HEADS, measuring only .312" x .312" x .375" deep, incorporate laminated cores plus all-metal face to reduce oxide loading problems. They are available in either a hyperbolic flush face contour for use with tape, or with relieved face giving a projecting track for drum, film or disc contact operation. Track widths can be supplied from .006" to .042" in .006" increments, and inductances to order. Mountings are base or rear #2-56 stud, or else the no-mount style.

THE "M" HEADS are even smaller; 1/4" cubed in dimensions. R/P track widths are .045" and .070", with plastic face either flush or relieved. Base, side, rear, or no-mount styles can be supplied. Various inductances are available.

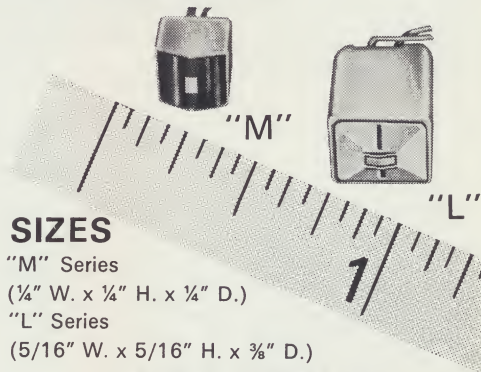
#### PARTIAL LISTING OF MINIATURE RECORD/PLAY HEADS

MODEL NUMBER	L42R8L	L24R2K	L24R8L	L12R8K	M70R4L
TYPE OF HEAD	Record/Playback	Record/Playback	Record/Playback	Record/Playback	Record/Playback
Inductance, 1 KC	80 MHY	200 MHY	40 MHY	30 MHY	20 MHY
Impedance, 1 KC	500 Ω	1.2 K	250 Ω	200 Ω	130 Ω
Resistance, D.C.	128 Ω	400 Ω	125 Ω	125 Ω	80 Ω
Gap Spacer	0.16-MIL	0.10-MIL	0.16-MIL	0.10-MIL	0.16-MIL
Track Width	.042-INCH	.024-INCH	.024-INCH	.012-INCH	.070-INCH

Average 7.5 IPS constant current Record/Playback characteristics using 3M190 tape at 1 KC and recorded 12 DB below tape saturation at 1 KC.

Peak Bias, 60 KC	0.70 MA	0.33 MA	0.65 MA	0.75 MA	2.0 MA
Record Current	60 UA	30 UA	50 UA	60 UA	100 UA
1 KC Output	1.0 MV	1.0 MV	0.45 MV	0.25 MV	0.6 MV
10 KC/1 KC Ratio	0 DB	+2 DB	0 DB	0 DB	-8 DB

Specifications subject to change without notice.



#### SIZES

"M" Series

(1/4" W. x 1/4" H. x 1/4" D.)

"L" Series

(5/16" W. x 5/16" H. x 3/8" D.)

#### PARTIAL LISTING OF MINIATURE ERASE HEADS

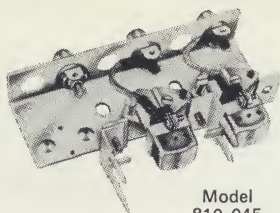
NORTONICS MODEL NUMBER	L42E6U	M90E3U
Track Width	.042-INCH	.090-INCH
Inductance, 1 KC	5 MHY	16 MHY
Resistance, D. C.	38 Ω	315 Ω
†Erase Current Oper.	28-42 MA	12 MA
Impedance, 60 KC	1.2 K	4 K
Voltage, 60 KC RMS	32-48 V.	50 V.

†For 56 DB erasure of Saturated Tape

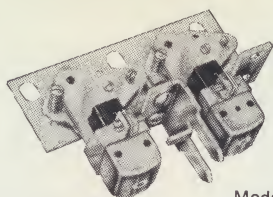
#### PREFERRED MODELS; MOST POPULAR MODELS Immediate Availability From Stock

**R/P**  
L24R8L  
L42R8L

**ERASE**  
L42E6U



Model  
810-045



Model  
810-056

### CARTRIDGE MOUNTS

Revolutionary head mounting assembly for cartridge tape handlers which use the endless loop tape cartridges of the Fidelipac and Viking type. Eliminates the need for rear-mount style heads with their awkward mounting and adjustment problems. Offers "Micrometer" adjustments of head height, azimuth, and face perpendicularity. Lock screw on each head bracket "freezes" the adjustments.

Heads are fastened to bracket with a quick-release screw clamp. Replacement time is a matter of seconds when heads are connected with the plug and cable assemblies provided with the kits.

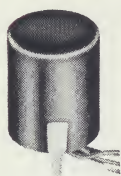
Two types of fork tape guides can be used to accurately control tape height with respect to tracks on head. The #173-16 standard guide (provided with the kit) can be used on either or both sides of the head which is located adjacent to the capstan. The #173-17 is a special brake-release type of guide-fork which is used to release the shroud brake of the larger Viking metal cartridges.

**#810-045 "B" Cartridge, Mount Kit.** Up to three heads may be mounted on this assembly, using two no-mount R/P heads of the "A", "B", "E", or "R" types. A small case erase head may be added in the third position on the channel base by means of a #810-044 head bracket. The kit is supplied unassembled and includes base channel, four jacks, two #810-042 brackets for the R/P or Combo heads, one #173-16 tape guide fork, and two plug and cable assemblies.

**#810-046 "G" Cartridge-Mount Kit.** As above, but with two #810-043 brackets for "G" or "T" size mono R/P heads.

**#810-055 "B" Two Head Cartridge-Mount Kit.** This smaller assembly can mount two no-mount R/P heads of the "A", "B", "E" or "R" types. The vertical back rail and the jacks have been eliminated. Connection to the heads may be made by use of the 18" shielded plug and cable assemblies provided with this kit.

**#810-056 "G" Two Head Cartridge-Mount Kit.** As above, but with #810-043 brackets for "G" or "T" size mono R/P heads.



T-60 SERIES

### BIAS OSCILLATOR TRANSFORMERS

... for transistor or vacuum tube circuits. Ferro-cube E-cores and special low resistance windings insure maximum efficiency. Other features: High "Q" stable voltage and frequency; pure waveform; aluminum can 1 1/8" diam. x 1 3/8" L. with spade lugs.

**T60T2**—For transistor circuits, push-pull or single-ended, supplies erase and bias power up to 100 kc. for medium and high impedance heads. Tapped secondary delivers 40 V., 80 V., and 120 V. rms to #4 and #1 erase heads.

**T60E**—For vacuum tube circuits, push-pull erase and bias power at operating frequencies from 40 kc. to 70 kc.; output: 120 V. rms to #1 erase heads and 7 V. rms to #2 erase heads.

**T60-F**—For vacuum tube circuits, push-pull erase and bias power at operating frequencies from 70 kc. to 100 kc.; output 150 V. rms tapped at 60 V. for high and medium impedance (#1 and #4) erase heads.

**T60-T6**—For transistorized tape duplicators operating at four to eight times normal running speeds at bias frequencies to 500 KC. Output bias voltage 70 V. rms. Supplied with circuit of a tested bias oscillator that will drive up to ten full-track or stereo duplicator record heads (8R type).

### UNIVERSAL MOUNTING BRACKETS

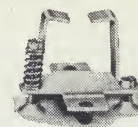
Designed for simplified mounting plus ease in adjustments.

These universal head mounting brackets provide for convenient adjustment of head azimuth height and tilt. Heads are easily snapped in and out of brackets, which are accurately positioned by means of "Micrometer" adjustment screws. Brackets are made of cadmium-plated steel and are supplied with mounting screws and spring—and can be combined with other Nortronics accessories to make various mounting assemblies.

**#810-027 Bracket.** For "A", "B", and "E" style no-mount heads.

**#810-028 Bracket.** For "G" size heads.

**#810-041 Bracket.** For small-case no-mount erase heads.



### SINGLE HEAD NEST



MODEL 810-024

Unique design single-head assembly which includes adjustable brackets, tape guide posts and mounting plate. Ideal for use as a self-contained head mounting and tape guidance unit for Nortronics combo heads. Fits all "A", and "B" style heads.

### PIN CLIPS

The **109-54** is a gold plated beryllium copper push-on clip formed to fit the terminal pins of all Nortronics heads. Lead wires may be soldered easily to the small end of the clip, leaving the larger end open to push on to the terminal pins. Pin clips permit ready attachment or removal of leads to terminals of heads, and also eliminate damage to head caused by soldering leads directly to pins.



MODEL 109-54

### PIN CLIP AND CABLE ASSEMBLIES

139 SERIES



Provided to make neat and simple electrical connections to the terminal pins of Nortronics heads. No. 26 insulated wire covered with shield braid, with **109-54** pin clips. Available in Red-Orange; Yellow-Blue; White-Black; Red-Black wire in 9" or 24" lengths.

### CONNECTOR PLUG

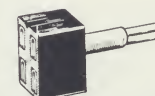
4-Pin Black Phenolic Plugs permit instant connection to all 4 pins of Stereo Heads and 2 pins of Mono Heads. **105-20** plug is for all Nortronics heads except SLF, SLFH, and older stereo and mono models. **105-18** plug is for SLF, SLFH, and older stereo and mono models.



MODEL 105-20

### PLUG AND CABLE ASSEMBLY

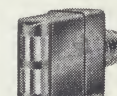
Assemblies ready to plug onto Head Terminal Pins. Consist of proper plug and two shielded cables (nominal length 18" each). **139-70** is used with all Nortronics stereo heads. **139-112** for all mono heads, except SLF, SLFH and mono-combo; **139-77** for mono-combo heads only; **139-69** for SLF, SLFH, and older stereo and mono models.



MODELS 139-70

### CONTACTOR HEAD

Use with metal-foil cueing to operate relay. Has two isolated contactor shoes. Model CH3-R-4U has rear mount and 4" leads. Model CH3-N9 is no-mount small-case size. CH3-B3 is base mount.



MODEL CH3

### TAPE GUIDE POST



MODEL  
173-13

A universal precision-made guide post for 1/4" tape—may readily be mounted to control the path of tape travel. Chrome plated brass insures long life and friction-free operation. Height is readily adjustable by loosening the locking set screw and rotating the threaded post.

